

CLAIMS

Subt  
B3  
5 1. Process for directly producing a blend of hydrosoluble cellulose sulfoacetate derivatives through esterification of a cellulose material, comprising the steps of :

(i) suspending the cellulose material in a glacial acetic acid solution and eliminating the excess acetic acid,

(ii) suspending the cellulose material swollen of acetic acid in a sulphuric acid solution in the glacial acetic acid, and

10 (iii) reacting the cellulose material by adding the acetic anhydride, characterized in that :

- the chosen acetic anhydride quantity ranges from 3 to 7 mols/mol of anhydroglucose,
- the esterification time ranges from 1 to 60 mn, and
- 15 - the esterification temperature ranges from 25 to 80°C.

20 2. Process according to claim 1, characterized in that it comprises a step (iv) during which the step (iii) reaction is stopped by adding an acetic acid aqueous solution.

3. Process according to claim 2, characterized in that it comprises the steps of :

25 (v) optionally centrifuging the blend of the above-mentioned step (iv),

(vi) washing and eliminating the optionally obtained residue,

(vii) adding water in order to precipitate the optionally generated cellulose triacetates,

(viii) centrifuging and eliminating the residue,

(ix) neutralizing the supernatant by optional cooling,

30 (x) dialyzing the resulting precipitate, and

(xi) freeze-drying the solution.

35 4. Process according to claim 3, characterized in that at step (vi), the residue is washed three times with acetic acid, and then three times with deionized water.

Subt A2  
5. Process according to claim 3 or 4, characterized in that, at the step (vii), the blend is put at a temperature of about 4°C for about 16 hours.

5 6. Process according to anyone of claims 3 to 5, characterized in that the step (ix), is carried out by a slow addition of a sodium hydroxide solution until a pH of about 7.5 is reached.

Subt B5  
10 7. Process according to anyone of claims 3 to 6, characterized in that at the step (ix) the blend is cooled in an ice bath and the pH is continuously followed so that the pH does not exceed 10.

8. Process according to claim 8, characterized in that the pH does not exceed 7.5.

Subt A3  
15 9. Process according to anyone of the preceding claims, characterized in that the chosen acetic anhydride quantity is 3.2 mols/mol of anhydroglucose.

20 10. Process according to anyone of the preceding claims, characterized in that the chosen esterification time ranges from 20 to 30 mn.

11. Process according to anyone of the preceding claims, characterized in that the chosen esterification temperature is 40°C.

25 12. Process according to anyone of the preceding claims, characterized in that the starting cellulose material is selected in the group comprising cellulose residues purified from co-products derived from agriculture and, more particularly, from cereal bran, for example wheat and corn, but also from wood cellulose, for example, pine-tree, or  
30 microcrystalline cellulose.

Subt B7  
35 13. Blend of hydrosoluble cellulose sulfoacetate derivatives adapted to be obtained using a process according to anyone of the preceding claims, characterized in that said derivatives have an acetylation degree ranging from 1.5 to 2.4.

Subt A4  
14. Derivative blend according to the preceding claim, characterized in that said derivatives have a sulphation degree ranging from 0.2 to 0.6.

5 15. Derivative blend according to claim 14, characterized in that said derivatives have a sulphation degree of 0.3.

Subt A5  
10 16. Derivative blend according to anyone of claims 13 to 15, characterized in that only the carbon atom which is in position 6 of the anhydroglucose cycles of said derivatives is sulphated.

15 17. Derivative blend according to anyone of claims 13 to 16, characterized in that said derivatives have a viscosimetric mean polymerization degree determined in cupric ethylene diamine at 25°C ranging from 210 to 1 590.

20 18. Derivative blend according to anyone of claims 15 to 17, characterized in that said blend intrinsic viscosity, determined by extrapolation at nil concentration of the reduced viscosity measured in water at 25°C ranges from 600 to 1 500 ml/g.

19. Blend according to anyone of claims 13 to 18, characterized in that said derivatives have such water retention properties that in the presence of salts, they swell up to 200 ml/g while remaining insoluble.

Subt A6  
25 20. Blend according to anyone of claims 13 to 19, characterized in that it is free from triacetylated derivatives.

30 21. Blend according to anyone of claims 13 to 20, characterized in that said derivatives are thermally stable for 16 hours at 80°C.

22. Blend according to anyone of claims 13 to 21, characterized in that it has the form of a thermoreversible and partially thixotropic gel.

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